The Development of Blended Learning in Learning Evaluation Subject in Universities in Makassar City

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ABSTRACT

The purpose of this research is to develop a blended learning-based learning model in the Learning Evaluation Course. The research study implemented Research and Development approach. In this case, the researcher developed a product in universities using the Ken Peffers model. This model consists of five stages, namely identifying problems, determining goals and solutions, designing and developing products, demonstrating products, evaluating products, and communicating products. In this development procedure, the researcher demonstrated the product through some steps, including production, validation, and trial. The product was trialed through individual tests performed by exerts of media and learning material and course lecturers. Individual and small group trials were conducted to identify products and to improve the suitability of the learning objectives, materials, and media. The findings obtained from validation performed by experts of material and media indicate that the product developed is valid and practical to be tested.

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1.   INTRODUCTION

The Covid-19 Pandemic has brought some new habits both in working and learning. Before the covid 19 pandemic, face-to-face learning was very common. However, since the Covid 19 pandemic, we have been aware of the importance of combining and optimizing synchronous and asynchronous learning (Chaeruman, 2020). Adopting technology in learning has not been optimum so far, thus, it should be optimized soon to solve various physical barriers emerging due to the Covid 19 pandemic. A lecturer should think of a new habit that must be started so that online learning can be massively conducted in educational institutions (Zhang et al., 2020). Online or distance learning has become an alternative during the Covid 19 pandemic in Indonesia.

In Blended Learning, students learn through mixed methods. They learn face to face with a teacher or a lecturer combined with technology - based learning to fulfill students' needs. In the technology - based learning, under the supervision of a teacher or a lecturer, students can manage the time, place, and learning material they want to learn independently, which leads to an integrated learning approach (National Education Association, 2011). According to Roblyer (Roblyer, 2016) there are three models of blended learning that are usually implemented in online traditional learning and training: online learning activities are carried out to enrich the activities in the traditional class. Online class with face – to - face activity: the learning activity is carried out online, but face – to - face activities are still provided. For example, students are asked to present to school to do exam, visit leasrning resources to review the learning, arrange face - to - face classes for the learning facilitator, and discuss some topics to involve students in the learning. Flipped classroom model: the teacher gives a task to students so that before the class, they can actively learn the material through digital media like video or e-books and some task instruction / exercises as discussion material in the face-to-face classroom learning. The learning model implemented in the subject of Learning Evaluation in Educational Technology program of The State University of Makassar was Flipped Learning. However, the face – to - face activities in the classroom was modified to face – to - face meeting via zoom. The use of conference video and LMS to assist simultaneous learning is believed to improve the students' learning results (Lawson & Comber, 2014)

A study conducted by McKinsey & Company in 2017 on data from the Program for International Student Assessment (PISA) found that students treated with mixed learning based on teacher-directed instruction and inquiry-based instruction will obtain the best learning results (Mourshed et al., 2017). In teacher-directed instruction learning mod, the teacher explains and demonstrates ideas, answers questions, and leads classroom discussion. While in inquiry-based instruction, students have a dominant role in the learning activities. The utilization of information and communication technology in inquiry-based instruction helps students to master the learning material (Mourshed et al., 2017)

A study by (Setiawan, 2021) shows that 50 percent of students felt less enthusiastic about following online learning, which influences their learning interest. It is also supported by (Rustam, 2017) that only a few people use the internet as a learning medium. Most of them only use it for online shopping, social media, etc. It is different from studies carried out between 2017 and 2019, finding that the implementation of blended learning in problem-based learning is more effective (Siregar & Aswan, 2019; Wijayanti et al., 2017). However, the implementation of blended learning also experiences some problems like the inadequacy of learning material (Szadziewska & Kujawski, 2017). As a consequence, many students are not satisfied with the implementation of the model and are inactive in the classroom because they find it difficult to ask for assistance (Swanson et al., 2015). While Blended Learning supported with adequate learning material is a good solution for learning during and after the pandemic era (Nijakowski et al., 2021; Shimkovich et al., 2022). It is supported by data showing that blended learning is a useful method to improve the quality of the learning process in high education and create a motivating environment to widen the knowledge (Castro-Rodríguez et al., 2021). These findings challenged us to develop a blended learning model to solve the problems by providing relevant learning material. Besides that, a study about the implementation of a blended learning strategy to improve students' learning independence and critical thinking skills in the digital era found that the implementation of a blended learning strategy can improve students' dependency on learning, critical thinking skills, and learning achievement (Ratna, 2013).

Based on the discussion above, we were interested in developing a teaching media consisting of a teaching plan in a semester, a Learning Management System, and blended learning based learning video for Learning Evaluation subject that would be implemented in three universities targeted for the development of the media namely The State University of Makassar, Muhammadiyah University of Makassar, and Muhammadiyah University of Sidenreng Rappang.

2. METHODS

This is a development study adopted the model of Ken Peffers et al. (Rusdi, 2018), consisting of six main activities: 1) Identifying problems, 2) Identifying goals and solutions, 3) Designing and developing the product, 4) Demonstrating the product, 5) Evaluating the product, and 6) Communicating the output to the public.

This study was conducted in three universities (The State University of Makassar, Muhammadiyah University of Makassar, and the Muhammadiyah University of Sidenreng Rappang). The research subjects were students taking the Learning Evaluation subject. The fifth and sixth stages were skipped because the duration of the research was limited. Data were collected through questionnaires, interviews, and documentation. The research instruments included a need analysis questionnaire, a questionnaire for validation by material and media experts, a questionnaire of lecturer and students' responses, interviews, and documentation.

Data were analyzed by implementing two techniques (qualitative descriptive and quantitative descriptive). The qualitative descriptive analysis was performed to process the data obtained from reviews conducted by the experts of learning media and material, while the quantitative descriptive analysis was performed to process numeral data obtained questionnaire into descriptive percentages. We used the following formula:

Table 1. Scales of Validity and Practicality Levels

Levels	Qualifications	Notes
90% - 100%	Very Good	No need to be revised
75% - 89%	Good	No need to be revised
65% - 74%	Fair	Need to be revised
55% - 64%	Low	Need to be revised
0% - 54%	Very Low	Need to be revised

Source : Arikunto (2007)

3. FINDINGS AND DISCUSSION

3.1 *The Level of Need Analysis on Blended Learning based Learning Media for Learning Evaluation Subject*

Problem identification was the first stage of the study. It was an important stage to obtain the description of the gap between reality and the goal. The problems were identified to determine the right stages to obtain data. It was also important to be the basis for determining solutions, goals, and development.

a. Curriculum Analysis

Curriculum analysis was the first step in problem identification. The curriculum was analyzed to identify the types of curricula implemented in each university. After analyzing the curriculum, we obtained information that the lesson plan development in Muhammadiyah University of Makassar and Muhammadiyah University of Sidenreng Rappang had not met the learning process standard because those universities did not specifically design the semester teaching plan. The data was obtained from interviews with the lecturers of that Learning Evaluation subject.

b. Need Analysis

Universities, including the three universities involved as the samples of this study, should teach students High Order Thinking Skills (HOTS) in any kind of subject, including

Learning Evaluation. In some cases, we can find tests with difficult questions like the national exam, selection to enter a university, and selection to be a civil servant. When the participants are not prepared, it will be difficult to compete at the national or international level.

The need analysis was carried out to identify students' needs and obtain basic information about HOTS questions integrated into the Learning Evaluation subject. The need analysis was performed in the three universities by asking the subject lecturer to randomly select five students to give descriptions of the HOTS questions and learning media. There were six main points of the questions that would be answered by students as respondents by putting a checklist in the available columns.

Based on the need analysis questionnaires completed by the five representative students from each university, all of them were students of the Educational Technology Program who took the Learning Evaluation subject in the 6th semester. In the first question asking, "Is there a CPMK in creating HOTS questions according to the Learning Evaluation subject that you follow?", all students answered Yes. It shows that the Learning Evaluation subject provided by each university included the HOTS questions in the material as the learning output target. The second question was that "Which statement below highly correlated with HOTS?" (options: "high order thinking skill" and "conceptual thinking"). Five students answered "Conceptual thinking", while the other ten students chose "High Order thinking skills".

The Learning Evaluation subject was carried out online during the Pandemic, and it was implemented synchronously, meaning that the three universities scheduled each meeting intensively together with the students. All students who programmed the subject of Learning Evaluation had to involve in the class and follow the meeting topic presented by lecturers during the class. This point was asked in the third and fourth questions.

In the fifth point, students were asked about "Tasks are given by the lecturer of Learning Evaluation subject" with the answer options, namely principle theory and basis of Learning Evaluation, analysis of learning indicator and goals, and test development. Students of the State University of Makassar reported that the task they received from the lecturer was to make a test. Students of the Muhammadiyah University of Makassar generally mentioned principle theory and the basis of Learning Evaluation. In contrast, most students of the Muhammadiyah University of Sidenreng Rappang mentioned analysis of learning indicators and goals.

In the sixth point, students were asked about "The task from the lecturer of Learning Evaluation subject to make a test" with three answer options, namely: developing a test without using electronic evaluation application or media, developing a test without using electronic evaluation application or media (online), and developing a test without using electronic evaluation application or media, (offline). All respondents from the State University of Makassar and most respondents from Muhammadiyah University of Makassar and Muhammadiyah University of Sidenreng Rappang chose "developing a test without using electronic evaluation application or media (online)."

3. 2.   *Development of Blended Learning-Based Learning Media in Learning Evaluation Courses*

a. **Stage of Identifying Targets and Solution**

The learning objective of learning evaluation comes from the identification of needs. In this case, students are expected to be able to develop test and non-test (cognitive, affective, and psychomotor) instruments for learning through offline and online media, so they must have skills in designing test instruments.

Therefore, the objectives were determined by designing the Graduate Learning Outcomes (CPL) of the subject of the study program, Course Learning Outcomes (CPMK), Study Materials, Sub-Course Learning Outcomes (Sub-CPMK), and learning indicators. CPL Study Program is a goal to be achieved after learning, and CPMK is a general goal that must be achieved after learning. Learning materials support learning achievement. Sub CPMK is the targeted ability after studying the topic or learning material. And the indicator measures students' achievement on the sub-CPMK.

To achieve the CPL and CPMK, the researchers offered a solution to design lesson plans (RPS) and implement LMS classes and learning videos so that students can learn by actively implementing the blended method (online and offline). The development of a lesson plan is expected to assist the lecturer of the Learning Evaluation subject in carrying out the class and facilitate students to learn so that they can achieve the target of each topic of the subject.

b. **Stage of Designing and Developing the Product**

1) **Designing and Developing Lesson Plan**

The lesson plan is designed to achieve the national goals of higher education (2020). The lesson plan contains the development of Study Program goals, subject goals, subject sub=goals, and achievement indicators. Besides that, the lesson plan is also expected to assist lecturers in carrying out the learning because it describes materials/sub - topics taught weekly. Design and development of the lesson plan should be based on the study program's goals and subject's goals that are then described in Lesson Plan concretely, including the assessment and the target attitudes and skills after following the class.

The researchers should develop the detail of the Lesson Plan by considering the credit of subjects and time allocation for a topic or material by listing references or learning resources. The affective aspect should also be inserted to build students' character.

2) **Design and Development of Learning Management System (LMS)**

The researchers designed the development of LMS by utilizing web – based application from Edmodo. Edmodo allows all students from any university to access the LMS. First, they need to create a student account, input the learning evaluation class code, and ask to join the class. The researcher will then accept them to access the class.

Edmodo LMS does not require authentication (Students' registration number) from their universities. Students only need to create an account using their active emails to synchronize to their gadgets automatically. Otherwise, the application will ask for student approval by entering an email password to verify access to devise users, which

aims to avoid using the registrant's account by other parties without consent. Students can then access the class and follow the lessons that are available in the Edmodo LMS.

The LMS was designed by the researchers to be attractive by inserting pictures related to the learning material. There is a pretest at the beginning of the class to assess the initial understanding of students selected as the research samples (15 students from three different universities in South Sulawesi). Besides that, the learning targets and indicator targets are informed in the form of an interesting figure. The assessment guidance is also attached so that students selected as the research samples can understand how the learning outcome is assessed.

3) Design and Development of Learning Video

The development of learning videos is to support the clarity of the material by including the learning objectives in the opening section of the video, and the narrator conveys the content, core material, concrete examples, and video conclusions. In designing learning videos, the researcher first designed a storyboard so that the video had a clear flow of discussion to help students easily understand it. The learning videos were developed using the standard Indonesian language, the pictures were clearly presented, and there were three learning videos designed by the researcher. The learning video with the theme "Higher Order Thinking Skill (HOTS)" has three videos that will later be used as teaching materials in the LMS Edmodo class.

The first video is an introduction to provide an overview of the HOTS questions, which discuss; 1) What are HOTS questions?, 2) Why HOTS questions?, 3) What are the characteristics of HOTS questions, and 4) Cognitive Levels, which discusses LOTS (Lower Order Thinking Skills) or cognitive level 1 "knowledge and understanding" namely knowing (C1) and understand (C2). The second video discusses cognitive levels 2 and 3, which discusses MOTS (Middle Order Thinking Skills) or cognitive level 2 "application" (C3) and HOTS (Higher Order Thinking Skills) cognitive level 3 "reasoning" that is thinking to analyze (C4), evaluate (C5), and create (C6). The third learning video discusses the steps for preparing HOTS questions, the role of HOTS questions in the assessment, and strategies and implementation of HOTS questions.

Figure 1. Learning Media and Resources in LMS (Lesson Plan)
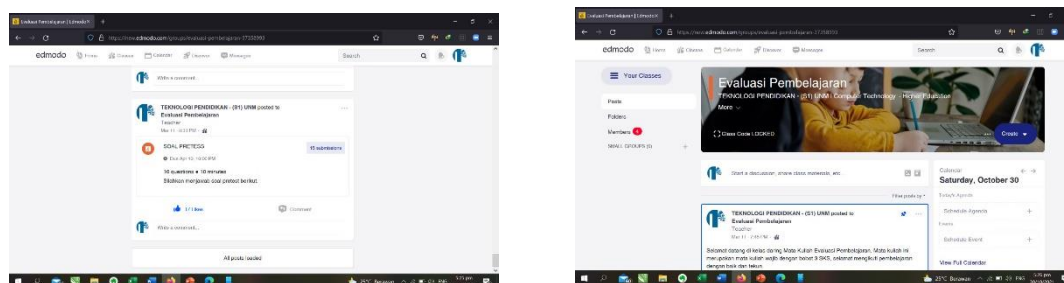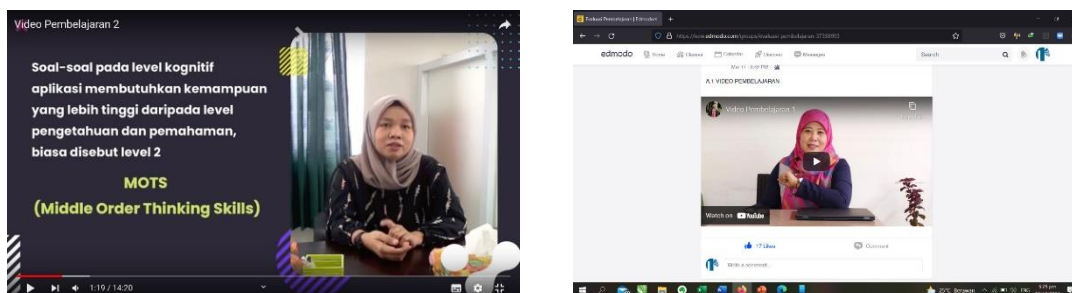
3. *Validity and Practicality of Blended Learning base Teaching Media in Learning Evaluation Subject*

a. **Validation by Material Experts**

Teaching materials and learning videos were developed by referring to the guidelines for developing RPS for Learning Evaluation Courses by Permenristekdikti Number 44 of 2015 concerning National Higher Education Standards. In developing the product, we first conduct individual trials to validate the material by paying attention to the suitability of the product, starting from the competency standards of graduates to the suitability of the media to learning materials.

This trial was carried out by a content expert to check the validity of the teaching materials and learning videos content that had been developed and whether they were proper for use by teachers and students in learning. Besides that, it was to determine whether the product was ready to be tested at the next stage. The material expert validators commented, "the content of videos 1, 2, and 3 is highly relevant with the material of preparing HOTS questions in the Learning Evaluation Course ". Finally, in conclusion, to determine whether these teaching materials and learning videos were feasible to be tested, the material expert validation stated that it was "fit for field trials without revisions."

The qualitative descriptive analysis in this questionnaire consisted of verbal and written inputs, responses, critiques, and suggestions from experts. To measure product validity, we used quantitative descriptive analysis. In measuring product validity, we applied conversions from Arikunto. Arikunto divided media validation qualifications into five categories, namely (90% - 100%) "very good", (75% - 89%) "good", (65% - 74%) "fair", (55% - 64%) "poor", and (0% - 54%) "very poor". After obtaining the results of each assessment item, the scores were added up. The total number of assessments (58) was then divided by the maximum score of 60 and multiplied by 100. finally, we got a percentage of 96.6%. The validity of the media was considered "no need to be revised." The practicality of the media was also considered "no need to be revised" (Arikunto, 2007).

b. **Validation by Media Experts**

The media experts validated the product developed in this study, which was the learning video. The learning video aimed to support students in understanding HOTS material. It is designed to describe the material throguh the learning video clearly.

The quantitative descriptive analyses performed to measure the validity and practicality of media were based on Arikunto. We reached the validity and practicality at 96% with the qualification "Very Good" and "No need revision."

c. Questionnaire for Lecturers of the Subject

The lecturer of Learning Evaluation subjects would be the main users of the product that the researchers developed. A teacher would use the product in teaching, design the learning method and strategy, and select the approach that will be implemented. The lecturer also had a role in evaluating whether the product could be implemented in teaching.

The lecturers of Learning Evaluation subjects involved in this study came from three different universities in South Sulawesi, namely The University of Makassar, Muhammadiyah University of Makassar, and the Muhammadiyah University of Sidenreng Rappang. The three universities had Educational Technology Program, which provided Learning Evaluation subjects. Each lecturer received two types of questionnaires: material and learning to evaluate the product's fitness with the learning activities. The data obtained from the questionnaire were analyzed using a method that was also used in analyzing the data from experts of content and media to measure the validity and practicality of the product. After all, the scores summed up, we identified that respondents from The University of Makassar, Muhammadiyah University of Makassar, and the Muhammadiyah University of Sidenreng Rappang gave the scores of 80% (categorized as "Good" and no need revision), 94,1% (categorized as "Very Good" and no need revision), and 91% (categorized as "Very Good" and no need revision) respectively.
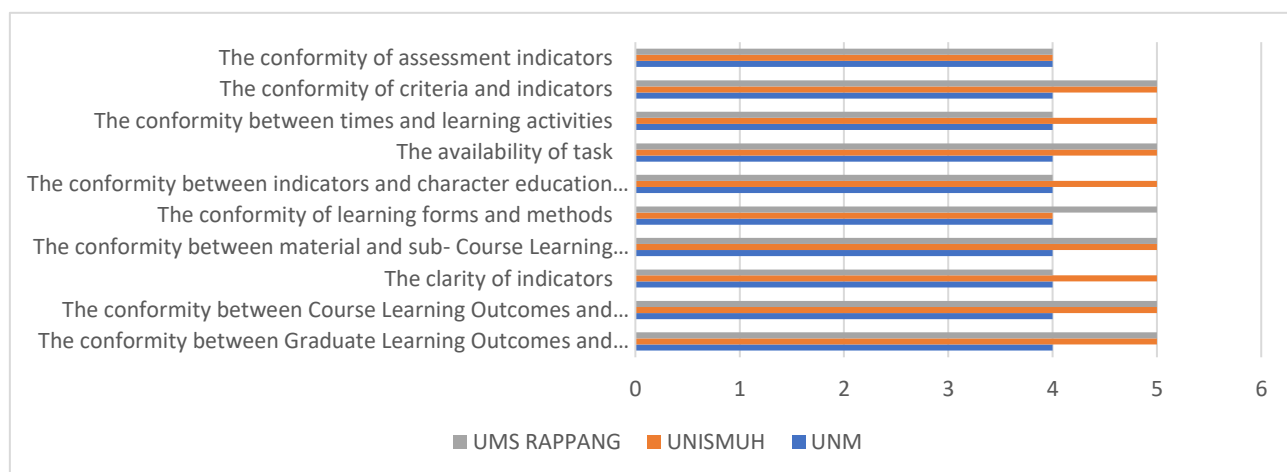

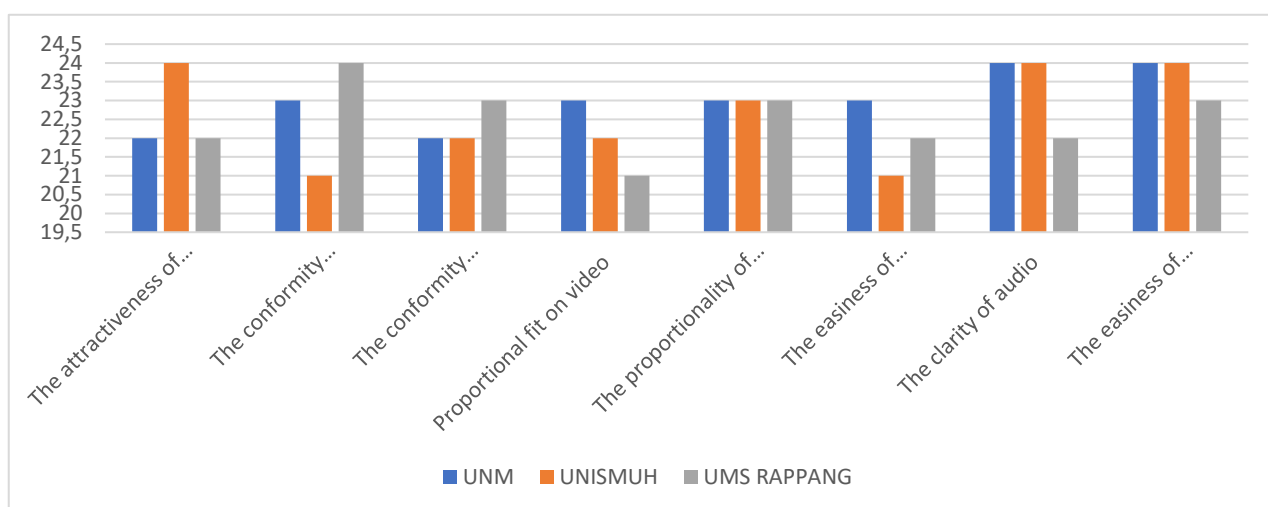**Figure 2. Graph about Assessment on Semester Lesson Plan (RPS)**

Figure 3. Graph About the Assessment of The Learning Media

d. Questionnaire for Students

Students involved in the research samples were the product user when joining the learning evaluation subject. They were under the guidance of lecturers, and researchers performed the product trial by trying to use the learning video and syllabus developed in this study.

There were 15 students selected as research samples who tried the learning video designed and directed to Learning Management System (LMS) using the Edmodo platform. The platform presented learning materials, pretests, learning videos, classroom discussions, tasks, learning target indicators, and columns to input their comments about the learning topic presented in the classroom (HOTS).

Students tended to be active during the trial session and enjoy the material. They gave positive comments on the questionnaires. Fifteen students from three different universities completed the questionnaires. Five students from the State University of Makassar scored 92%, categorized as "Very Good." Five students from Muhammadiyah University of Makassar scored 90.5, categorized as "Very Good," and five students from Muhammadiyah University of Sidenreng Rappang gave a score of 90, categorized as "Very Good." For a more detail, look at the graph below:
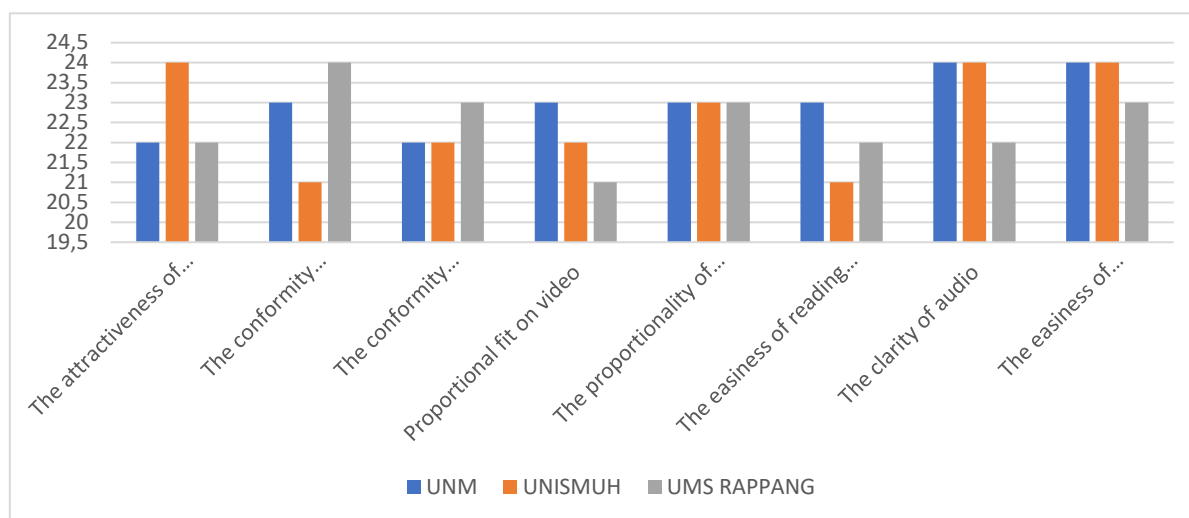
Figure 4. Response of Students on Blended Learning based Learning Media for Learning Evaluation Subject

3.4 Discussion

From the study conducted in three universities in South Sulawesi, we obtained the information that it was necessary to develop learning media for the Learning Evaluation subject because the lesson plan can become the guidelines for lecturers in structured classes to achieve the target learning goals. It is supported by a study stating that students need a learning pattern that integrates technology into learning and allows students to communicate and access information from any sources (Zaid & Bahri, 2018). Designing is an important step as it can ease the development of a curriculum which leads to more effective and efficient e-learning (Destya et al., 2016). The statement is supported by another study stating the instructional design becomes a blueprint in the learning process which directs the process of the instructional strategy development (Batubara, 2018). Besides that, a good learning design will support the lecturers' communication and interaction so that the learning can run well (Taskiran, 2021). Besides that, the learning design helps teachers to think systematically (Alsaleh, 2020), so that they can effectively use the learning media like video or activities that can support the learning.

Besides the lesson plan, the product of this study was learning videos. The learning video is important to assist students in understanding the materials of HOTS. It was selected to be developed because the animation it presents can improve their thinking skills and widen their experiences (Kairuddin et al., 2020). The study was also supported by (Kuncoro & Hidayati, 2021) that video media can improve students' high order thinking skills and their learning interest because it delivers the learning goals and provides interesting animation and text to assist students in understanding the content. Learning video was proved to improve learning motivation (Tjakrawadhana, 2017) because it can be used flexibly (Bravo et al., 2011). Besides that, blended learning with LMS will be more optimal when assisted with video because, according to the analysis of the need for media, LMS video was the most favorable (Martínez-Argüelles et al., 2015)

Design and development of learning videos were integrated into Edmodo LMS. The use of LMS in learning is very important because it can make the learning activities easier, more structured, effective, and efficient (Pratomo & Wahanisa, 2021). Features in LMS can facilitate students to learn, especially in the pandemic era (Fitriani, 2020). The use of LMS can improve students' learning motivation, although it is conducted online (Swastika & Lukita, 2020). The output of the development of blended learning-based learning media for the Learning Evaluation subject is appropriate to be implemented in universities in South Sulawesi, especially in the program of Educational Technology. It is in line with the study (Aswan, 2018; Saputro et al., 2021) that the use of LMS in teaching can improve students' learning outcomes. LMS Edmodo was selected because it was more family and easier to understand so that it has fewer technical problems (Tanduklangi et al., 2018).

4. CONCLUSION

The description of the need for blended learning-based learning media for the Learning Evaluation subject was obtained by distributing questionnaires to students. We found that students needed a learning resource that could facilitate them to study anytime and anywhere. Thus, it was important to develop a learning media for the Learning Evaluation subject because there were some students who did not understand the material well. The output of the development of products for the Learning Evaluation subject was the design and development of Lesson Plan, learning videos, and LMS, which were exclusively designed to assist students in being more focused on studying and easier to understand the material. The prospective users (students and lecturers) in general considered the product as valid and practical to be developed in the universities in South Sulawesi, especially in the Educational Technology program.

This study utilized Edmodo as the learning media. Although it has some benefits, it also has some drawbacks. It is a private company that potentially stops operating. Thus, the learning material would be better presented using the university website or the lecturers' web. The further development of the product should become a learning resource that can be accessed by and integrated with the university party to support the program of Merdeka Belajar Kampus Merdeka.

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